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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,142	07/10/2003	Tae-Hwan Kim	1190860-991190	4446

26379 7590 04/11/2005

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EXAMINER	
CHUNG, DAVID Y	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,142	KIM ET AL.	
	Examiner	Art Unit	
	David Y. Chung	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 10-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,10-13,15,16,18,19 and 21* is/are rejected.

7)☒ Claim(s) *2,14,17,20,22 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I in the reply filed on January 12, 2005 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 10 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U.S. 6,362,862) in view of Watanabe et al. (U.S. 6,323,926) and Xu (U.S. 6,057,901).

Itoh et al. discloses a liquid crystal display with two compensation plates coupled to one of the glass substrates. Note in figure 7, the upper glass substrate 80, phase plates PH1 and PH2 (compensation films), polarizing plate 95 which is coupled to the phase plates, and pixel electrodes 57 which are coupled to the liquid crystal panel. See column 9, line 35 – column 10, line 10. See also column 11, lines 5-10. Examiner interprets the claim language to mean that total composite retardation value of the entire

display (including both compensation films and the liquid crystal layer) is less than 200 nm for light having a wavelength of 550 nm. The embodiments disclosed by Itoh et al. in figures 10, 12 and 14 all show a composite retardation value of less than 200 nm.

Itoh et al. does not disclose long axes of the liquid crystal molecules being oriented orthogonal to the substrates in the absence of an electric field. Watanabe et al. discloses vertical alignment mode LCDs in which liquid crystal molecules are aligned vertically to the substrate surface. Watanabe et al. teaches that this type of display is advantageous in that high quality black display is more easily obtained and thus high contrast ratio is more easily realized. See column 1, lines 36-49. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to align the liquid crystal molecules vertically to the substrates because of the high contrast ratio that is possible.

Itoh et al. does not disclose uniaxial compensation films. Xu discloses that these types of compensation films were conventional at the time of invention. See column 7, lines 36-44. It would have been obvious to one of ordinary skill in the art at the time of invention to use uniaxial compensation films because conventional elements were generally cost-effective and readily available.

As to claim 19, Itoh et al. discloses an embodiment wherein the phase plates PH1 and PH2 both have a negative retardation value (-21 nm and -29 nm, respectively). See column 13, line 59 – column 14, line 25.

2. Claims 11, 12 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U.S. 6,362,862) in view of Watanabe et al. (U.S. 6,323,926) and Xu (U.S. 6,057,901) and in further view of Matsuyama et al. (U.S. 6,411,360).

As to claims 11 and 12, figure 7 of Itoh et al. discloses a thin film transistor array formed on substrate 10, and a common electrode formed on substrate 80. However, Itoh et al. does not disclose a color filter array and black matrix on substrate 80.

Matsuyama et al. discloses a conventional color filter array structure in figure 17. Note the color filters FIL formed on the black matrix BM. See column 2, lines 15-33. It would have been obvious to one of ordinary skill in the art at the time of invention to form a color filter array according to the conventional structure shown by Matsuyama et al. because conventional structures were generally cheap to manufacture due to well-established manufacturing methodologies.

As to claim 21, Itoh et al. does not disclose the width of the gap separating the substrates. Matsuyama et al. teaches that the distance between a pair of substrates is generally set at a predetermined value by dispersing spacers between the substrates. See column 2, lines 41-46. Therefore, the width of the gap separating the substrates is a result-effective variable. It would have been obvious to one of ordinary skill in the art at the time of invention to separate the substrates by 2.5-3.5 microns because it has been judicially determined that finding the optimal value of a result effective variable is obvious to those of ordinary skill in the art.

3. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U.S. 6,362,862) in view of Watanabe et al. (U.S. 6,323,926) and Xu (U.S. 6,057,901) and in further view of Bahadur (Liquid Crystals).

Itoh et al. does not disclose providing a first and second polarizing plate with axes that are orthogonal. Bahadur teaches that this arrangement of crossed polarizers is standard for normally white mode displays. See page 189. It would have been obvious to one of ordinary skill in the art at the time of invention to provide polarizers having orthogonal axes in order to form a normally white display.

4. Claims 13 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U.S. 6,362,862) in view of Watanabe et al. (U.S. 6,323,926), Xu (U.S. 6,057,901) and Matsuyama et al. (U.S. 6,411,360) and in further view of Hebiguchi (U.S. 5,598,012).

As to claim 13, Itoh et al. discloses the active matrix structure in figures 1 and 7. Note the gate lines 20, gate insulator 25, active layer 30 (silicon stripe), data wire 45, passivation layer 50, and pixel electrodes 57 contacting the data line via the thin film transistor. Itoh et al. does not disclose ohmic contacts formed on the silicon strip.

Hebiguchi discloses that it was conventional to form an ohmic contact layer by doping the upper surface of the semiconductor layer. See figures 3 and 6 and column

1, lines 53-65. It would have been obvious to one of ordinary skill in the art at the time of invention to form an ohmic contact on the semiconductor layer by doping the upper surface because it was conventional, and conventional practices were generally proven and cost-effective.

As to claim 15, Itoh et al. discloses that the pixel electrodes 57 are made of aluminum, which is a reflective material. See column 9, lines 59-67.

5. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh et al. (U.S. 6,362,862) in view of Watanabe et al. (U.S. 6,323,926) and Xu (U.S. 6,057,901) in further view of Michihata et al. (U.S. 6,320,042).

Itoh et al. does not disclose a protective film coupled to the polarizing film and including triacetate cellulose. Michihata et al. discloses that cellulose triacetate is commonly used as a protective film for a polarizing plate because it exhibits a smaller amount of double refraction. See column 1, lines 10-16. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form a protective film for the polarizer using cellulose triacetate because of the smaller amount of double refraction.

Allowable Subject Matter

Claims 2, 14, 17, 20, 22 and 23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As to claim 2, the prior art of Itoh et al. disclosed a reflective type display, not a transmissive display. As to claim 14, the passivation layer disclosed by Itoh et al. does not have an uneven surface with protrusions and depressions (see figure 7). As to claim 17, the prior art of record did not teach specifically making the total thickness of the couple compensators to be less than 50 microns. As to claim 20, the prior art of record did not teach or suggest an additional reverse dispersion phase difference film between the coupled compensation films and the polarizer. As to claim 22, Itoh et al. did not teach or suggest a viewing angle of 75 degrees from the top and 74 degrees from the sides. As to claim 23, Itoh et al. does not disclose phase compensators that have a collective retardation value of 160 nm for light of 550 nm.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (571) 272-2288. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

ROBERT H. KIM
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TECHNOLOGY CENTER 2800

David Chung
GAU 2871
04/03/05